

CLAIMS:

1. A condensation apparatus comprising,
a condensation surface, wherein said condensation surface comprises a plurality of elevations, said plurality of elevations having an average height of from 50 nm to 1 mm and an average separation of from 50 nm to 1 mm.
2. The apparatus as claimed in claim 1, wherein the condensation surface has an angle of inclination of at least 3°.
3. The apparatus as claimed in claim 1, wherein the condensation surface has a surface energy of from 5 to 20 mN/m when the plurality of elevations is not present.
4. The apparatus as claimed in claim 1, wherein the condensation surface is coated with polytetrafluoroethylene, polyvinylidene fluoride, or polymers comprising perfluoroalkoxy compounds.
5. The apparatus as claimed in claim 1, wherein the condensation surface comprises at least one metal.
6. The apparatus as claimed in claim 1, wherein the condensation surface comprises a coating, said coating comprising at least one compound selected from the group consisting of fluoroalkanes, alkylfluorosilanes and fluorinated vinyls.
7. The apparatus as claimed in claim 1, wherein the condensation surface comprises polytetrafluoroethylene, polyvinylidene, fluoride, or polymers made from perfluoroalkoxy compounds.
8. The apparatus as claimed in claim 1, wherein the plurality of elevations is randomly distributed on the condensation surface.
9. The apparatus as claimed in claim 1, wherein the plurality of elevations are distributed in an ordered pattern on the condensation surface.
10. A distillation system comprising the apparatus as claimed in claim 1.
11. A method for condensing a gas comprising,
contacting a condensable gas with a condensation surface to form a condensate,
wherein said condensation surface comprises a plurality of elevations having an average height of from 50 nm to 1 mm and an average separation of from 50 nm to 1 mm.
12. The method as claimed in claim 11, wherein the condensable gas is steam, alcohol vapor or fuel vapor.

13. The method as claimed in claim 11, wherein the condensate is water, alcohol or fuel.

14. The method as claimed in claim 11, wherein the condensation surface has an angle of inclination of at least 3°.

15. The method as claimed in claim 11, wherein the condensation surface has a surface energy of from 5 to 20 mN/m when the plurality of elevations is not present.

16. The method as claimed in claim 11, wherein the condensation surface is coated with polytetrafluoroethylene, polyvinylidene fluoride, or polymers comprising perfluoroalkoxy compounds.

17. The method as claimed in claim 11, wherein the condensation surface comprises at least one metal.

18. The method as claimed in claim 11, wherein the condensation surface comprises a coating, said coating comprising at least one compound selected from the group consisting of fluoroalkanes, alkylfluorosilanes and fluorinated vinyls.

19. The method as claimed in claim 11, wherein the condensation surface comprises polytetrafluoroethylene, polyvinylidene, fluoride, or polymers made from perfluoroalkoxy compounds.

20. The method as claimed in claim 11, wherein the plurality of elevations is randomly distributed on the condensation surface.

21. The method as claimed in claim 11, wherein the plurality of elevations are distributed in an ordered pattern on the condensation surface.